UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,540	06/26/2003	Ho-Sang Sung	3364P109	5764

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BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER
JACKSON, JAKIEDA R

ART UNIT	PAPER NUMBER
2626	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>26 June 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   **Claims 1-7** are rejected under 35 U.S.C. 102(e) as being anticipated by

Hardwick (USPN 6,377,916).

Regarding **claim 1**, Hardwick discloses a transmitter for speech coding and

decoding by using an additional bit allocation method, comprising:

a standard speech coder for receiving a speech signal while dividing the speech

signal into spectrum information representing a vocal tract function and an excited

signal component and generating standard coded bit streams by performing modeling,

quantizing, and coding with respect to the spectrum information and the excited signal

(abstract with column 2, lines 24-38 and column 5, lines 47-65 with column 10, lines 62-

65 and column 11, lines 36-46);

a quality enhancement coder for obtaining errors between the quantized signal

and the desired signal with respect to each of the spectrum information and the excited

signal component, and generating coded bit streams by performing additional

quantization with respect to the obtained errors (column 14, lines 25-40); and,

a multiplexing block for multiplexing the bit streams obtained at each of the

coders and transmitting the multiplexed bit streams to a receiver (bit stream; column 3,

lines 26-67).

Regarding **claim 2**, Hardwick discloses a transmitter wherein the quality

enhancement coder quantizes each of the errors by using additional bits to perform

multi-stage quantization (additional bits; column 14, lines 41-55 and column 18, lines

42-64).

Regarding **claim 3**, Hardwick discloses a transmitter wherein the quality

enhancement coder uses a vector quantization method for additional quantization

(vector quantization; column 14, lines 41-55).

Regarding **claim 4**, Hardwick discloses a transmitter wherein the spectrum

information is an LSP parameter (spectral pair; column 13, lines 14-31 and column 17,

lines 11-21).

Regarding **claim 5**, Hardwick discloses a transmitter wherein the quality

enhancement coder performs additional quantization with respect to a predetermined

part of the spectrum information in accordance with quantization performance of the

standard speech coder (further quantized; column 13, lines 40-55).

Regarding **claim 6**, Hardwick discloses a transmitter wherein the quality

enhancement coder comprises:

an LSP error quantization block for receiving an unquantized LSP parameter (unquantized) and a quantized LSP parameter from the standard speech coder and performing a quantization (quantized) procedure with respect to errors of the two LSP parameters (column 13, line 13 - column 14, line 67 and column 17, lines 11-21 with column 18, lines 29-64 and column 20, lines 9-30).

an excited signal error quantization block for receiving an unquantized excited signal (unquantized) and a quantized excited signal (quantized) from the standard speech coder and performing a quantization procedure with respect to errors of the two excited signals (column 13, line 13 - column 14, line 67 with column 18, lines 29-64).

Regarding **claim 7**, Hardwick discloses a transmitter wherein the quality enhancement coder comprises an LSP interpolation information quantization block for minimizing parameter errors between the LSP parameter obtained at each sub-frame of the standard speech coder and the LSP parameter obtained through a quantization procedure and an interpolation procedure by using additional bits (spectral pair; column 13, lines 56-67).

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   **Claims 8-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Maeda (USPN 6,658,378) in view of Oishi (USPN 7,047,186).

Regarding **claim 8**, Maeda discloses a receiver for speech coding and decoding

by using an additional bit allocation method, comprising:

a quality enhancement decoder for receiving the additional LSP index (LSP

index) and the additional excited signal index and generating error components

(residual) of the spectrum information and the excited signal by performing a

dequantization procedure with respect to the additional LSP index and the additional

excited signal index (column 24, lines 15-64), but does not specifically teach a

demultiplexing block and a standard speech decoder.

Oishi discloses a receiver comprising:

a demultiplexing block for receiving bit streams of a speech signal and

demultiplexing the bit streams (bit-stream) of the speech signal to generate an LSP

index and an additional LSP index (LSP) to compensate the error of spectrum

information of the speech signal, and an excited signal index and an additional excited

signal index to compensate the error of an excited signal component of the speech

signal (column 5, line 65 – column 6, line 13 and column 8, lines 10-12);

a standard speech decoder for receiving the multiplexed index signals,

performing a dequantization procedure with respect to spectrum information and an

excited component of the speech signal and restoring the speech signal by combining

the dequantized spectrum information and excited signal component with a

corresponding error component of the spectrum information and the excited signal (column 5, line 65 – column 6, line 13), to obtain an optimum level of calculation accuracy for decoding wide band voice signals.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Maeda's receiver wherein it comprises a demultiplexing block and a standard speech decoder, as taught by Oishi, so that the amount of calculation can be reduced to a minimum, and when to decode the wide band voice signals, the calculation can be achieved with sufficient level of accuracy. This voice signal can be decoded with high efficiency, and high quality voices can reproduced from the decoded voice signals (column 9, lines 34-40).

Regarding **claim 9**, Maeda discloses a receiver wherein the standard speech coder comprises:

an LSP dequantization block (LSP sent to dequantizer) for receiving the LSP index and restoring an LSP parameter by performing a dequantization procedure with respect to the LSP index (column 24, lines 15-64);

an excited signal dequantization block for receiving the excited signal index and restoring the excited signal by performing a dequantization procedure with respect to the excited signal index (column 24, lines 15-64); and,

a speech combining block for respectively combining error components of the spectrum information and the excited signal into the restored LSP parameter and the excited signal and restoring the speech signal by processing the two combined signals (column 24, lines 15-64 with column 25, lines 26-42).

Regarding **claim 10**, Maeda discloses a receiver wherein the quality

enhancement block comprises:

an LSP error dequantization block for receiving the LSP index and generating an

error component of the spectrum information by performing a dequantization procedure

with respect to the LSP index (LSP index; column 24, lines 15-64); and,

an excited signal error dequantization block for receiving the additional excited

signal index and generating an error component of the excited signal by performing a

dequantization procedure with respect to the additional excited signal index

(dequantizer; column 24, lines 15-64).

Conclusion

5.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Jakieda R. Jackson whose telephone number is

571.272.7619. The examiner can normally be reached on Monday through Friday from

7:30 a.m. to 5:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, David Hudspeth can be reached on 571.272.7843. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JRJ
January 25, 2007

- DAVID HUDSPETH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600